

Finite Differences HW

Name

#1-2

use finite differences to find the rule for the n^{th} term, then find the sum

i.)

n	1	2	3	4	5
a_n	1	5	12	22	35

b.) $\sum_{i=1}^7$ _____

2)

n	1	2	3	4	5	6
a_n	6	15	22	21	6	-29

b)

$$\sum_{k=1}^5 \underline{\hspace{2cm}}$$

find a_n

3)

n	1	2	3	4	5	6
a_n	5	13	17	11	11	56

4)

n	0	2	4	6	8	10
a_n	8	0	15	69	98	87

Answers

$$\# 1. a) Q_n = \frac{3}{2}n^2 - \frac{1}{2}n$$

$$b) 196$$

$$\# 2. a) Q_n = -n^3 + 5n^2 + n + 1$$

$$b) -3930$$

$$\# 3 \quad Q_n = -2.71n^3 - 25.5n^2 + 71.8n - 45.7$$

$$\# 4 \quad Q_n = -0.587n^3 + 8.99n^2 - 23.4n + 9.62$$